ITEM NO.	PERFORMANCE REQUIREMENT	RELATED REQUIREMENTS OR INFORMATION	WORKLOAD DATA	MINIMUM STANDARDS
		posts (including signs), fire plugs, manholes, valve pits and other mowing obstructions. Maintain areas under pipelines and other areas not specifically noted here but shown in the drawings.		
5.8.6.1.2	Weed Control	Use selective herbicides to control broad-leafed weeds in the lawn areas identified in item 5.8.5.4.3.	Nothing additional	
5.8.6.2	Pest Control			
	Provide pest control services. Pests include any insects, arachnids, rodents, vertebrates, birds, animals, and reptiles that are nuisances or harmful to people or their desired surroundings. Termite infestations will be handled as indeterminate work (See 5.8.7)	Even though specific guidelines/regulations and minimum performance standards have been established, the services to be performed will rely heavily on knowledgeable, experienced individuals who are capable of establishing an early prevention program to eliminate or greatly reduce pest infestations. No additional information is available. Pest infestations vary from season to season, year to year, and form a multitude of situations. The Contractor shall review all data available, analyze the geographical location/conditions, and standard industry practices to determine the size and scope of the required program to be offered.	Contractor determined	
5.8.6.2.1	Work Identification			
5.8.6.2.1.1	Continually inspect structures, facilities, and grounds to identify pest infestations.	As a minimum, includes work that is reasonably visible to any Contractor personnel performing any service. (i.e., janitors should report crawling infestations; grounds keepers should report moles, insect infestations; mechanics should report rodents, etc.	See below:	Conduct inspections with individuals technically knowledgeable and capable of identifying suspected pest infestations. Provide inspection services at a frequency required to

ITEM NO.	PERFORMANCE REQUIREMENT	RELATED REQUIREMENTS OR INFORMATION	WORKLOAD DATA	MINIMUM STANDARDS
				control pest infestations.
5.8.6.2.1.1.1	Inspect Structures and Facilities	Includes all buildings and structures at SSC in Areas A and B	1,485,000 SF	Inspect no less than annually.
5.8.6.2.1.1.2	Inspect Food Service Areas	Inspect all building containing food service areas. (Bldgs. 2201, 1100, 1002)	16,900 SF	Inspect no less than quarterly.
5.8.6.2.1.1.3	Inspect Medical Clinic	Inspect Medical Clinic in building 1100	5,400 SF	Inspect no less than quarterly.
5.8.6.2.1.1.4	Inspect Atrium in Bldg 1100	Nothing additional	5,750 SF	Inspect no less than monthly.
5.8.6.2.1.1.5	Inspect Building Exterior	Inspect all entrances and the eaves of single story buildings	7,180 LF	Inspect no less than quarterly.
5.8.6.2.1.2	Perform Pest Control Work Identified by NASA, Resident Agencies and Government Contractors	Accept identified/suspected pest control work from any individual	Nothing additional	Respond to calls and take appropriate corrective action within 24 hours.
5.8.6.5.8	Work Accomplishment and Completion			
5.8.6.2.2.1	Notify Building Occupants of Scheduled Treatments or Applications to the Interior of Their Assigned Facilities.	Identify the areas to be treated, times of application, pesticide to be used, and re-entry times (if applicable). In addition verbal or written notification, post warning signs, rope off areas, stage barriers, etc., to allow sufficient notice of upcoming treatments and prevent potential dangers or hazardous conditions.	Nothing additional	No applications shall begin without proper notification to the appropriate individuals.

ITEM NO.	PERFORMANCE REQUIREMENT	RELATED REQUIREMENTS OR INFORMATION	WORKLOAD DATA	MINIMUM STANDARDS
5.8.6.2.2.2	Treat all Infestations, including:	Includes mechanical chemical or construction treatments and re-applications, as necessary, to remove all cases of infestations	1,987,866 SF	Applications, procedures, and chemicals shall not damage the integrity of the areas being treated or the surrounding area, and shall have minimal impact on customers.
5.8.6.2.2.2.1	Identify and Treat all Fireant Infestations in Areas A and B	Identify and eradicate all fireant populations. Area A is defined on the drawings as base and Area B is Test Complex.	440 acres	No more than 1 visible mound, 12 inches or greater in diameter per 1000 SF of area
5.8.6.2.2.2.2	Identify and Treat Poisonous Spiders in Areas A and B.	Identify and eradicate all black widow spider populations at Building 4120, A-1 T/.S, treat outside hardcore levels: 5,6,7,8,9, and 10. Building 4122, A-2 T/S, treat outside hardcore levels 5,6,7,8,9, and 10. Building 4220, B T/S, treat outside hardcore levels: 8,9,10,11,12,13,14,15,16,17,18, and 19. Treat on top of B-1 cryogenic tanks. Building 3202 warehouse area. Treat entrances to Buildings 4995,4110,and 4210.	4 Requests Annually	No instance of non-compliance
5.8.6.2.2.2.3	Identify and Treat all Infestations in the Atrium in Bldg 1100	Pesticide application shall be limited to Fridays after 4:30 pm.	Nothing additional	
5.8.6.2.2.3	Control Mosquito Population	Area A and Area B. All control of mosquito population shall be completed in other than core hours (refer to Table 1-1).	Nothing additional	Landing rate of less than 8 mosquitoes in 60 seconds in populated sections of Area A and Area B

ITEM NO.	PERFORMANCE REQUIREMENT	RELATED REQUIREMENTS OR INFORMATION	WORKLOAD DATA	MINIMUM STANDARDS
5.8.7	Grounds Improvements	Grounds improvement projects may include, but is not limited to, planting trees and updating mature landscaped areas.	As Requested Annual Historical: 400 manhours $8000 Material	Meet performance requirements in the SWR
5.8.8	Wetland Mitigation	Wetland mitigation may include, but is not limited to, planting trees and burning vegetation.	Historical	Meet performance requirements in the SWR and in the time specified
5.8.9	Resident Agency Requests	Ground maintenance activities in addition to defined requirements which may include but not limited to clean up grass cutting, planting pest management change of command activities support.	Historical	Meet performance requirements in the SWR and in the time specified
5.8.10	Carcass Disposal	Remove dead animals and dispose of appropriately	Est: 20 requests annually	Carcass shall be removed the same day the request is made.

Annex 5

Exhibit 1

Inventory of Built-in Cranes, Monorails, and Hoists

1/26/99

INVENTORY OF BUILT-IN C ES, MONORAILS, AND HOISTS

EQNUM	DESCRIPTION	BLDG	CRITICAL	MI-PM	MI-LOAD TEST	MI INSPECTION	RECERT DATE	RESPONSIBLE OPERATOR	CAPACITY	WIRE ROPE / CHAIN	MANUFACTURER
96A10284	#59 - 10 TON BRIDGE CRANE	1005	YES	TS 1812	CP-1008	TS-1787	10/5/98	NRL	10 TON	3/8"	PENTEX EQUIPMENT CO.
96A10256	LD 19 - MONORAIL HOIST-ROOM B-19	1005	YES	TS 21112	CP-1014	TS-1787	10/5/98	NRL	2 TON	1/4"	YALE
96A10255	LD 20 - MONORAIL HOIST-ROOM D-15	1005	YES	TS 21112	CP-1014	TS-1787	10/5/98	NRL	2 TON	1/4"	YALE
96A10290	LD 21 - MONORAIL CHAIN HOIST-CHAM	1005	YES	TS 21112	CP-1014	TS-1787	10/5/98	NRL	1/2 TON	CHAIN	YALE
96A10298	LD 22 MONORAIL HOIST-ROOM C315	1105	YES	TS 21112	CP-1014	TS-1787	10/5/98	NRL	1 TON	3/16"	YALE
96A10267	#79 - MONORAIL HOIST-ELEC SHOP	2201	NO	TS 21112	CP-1014	TS-1787	9/20/00	FOSC	1 TON	CHAIN	BUDGET
96A10264	L 70 - HOIST-HATACHI	2201	NO	TS 21112	CP-1014	TS-1787	6/24/01	FOSC	5 TON	3/8" & 7/16"	HITACHI
96A10313	L 47 - MONORAIL HOIST-LAB	2204	NO	TS 21112	CP-1014	TS-1787	12/1/00	TSC	2 TON	5/16"	P&H
96A10311	L 48 - MONORAIL HOIST-LAB	2204	NO	TS 21112	CP-1014	TS-1787	12/1/00	TSC	2 TON	5/16"	DRESSER INDUSTRIES
96A10312	L 49 - MONORAIL HOIST-LAB	2204	NO	TS 21112	CP-1014	TS-1787	12/1/00	TSC	1 TON	1/4"	P&H
96A10292	L 10&11 - BRIDGE CRANE/AUX-MACH SHOP	2205	NO	TS 1030	CP-1008	TS-1787	6/12/01	FOSC	15 TON/5 TON	5/8" / 1/2"	MILWAUKEE CRANE CO.
96A10233	L 4 - MONORAIL HOIST-FCPF	2205	NO	TS 21112	CP-1014	TS-1787	2/3/00	FOSC	2 TON	CHAIN	CM (COLUMBUS McKINNION)
96A10231	L 42 - CHAIN HOIST-NASA #0824712-CLEAN LIN	2205	YES	TS 21112	CP-1014	TS-1787	3/14/98	FOSC	1 TON	CHAIN	CM (COLUMBUS McKINNION)
96A10232	L 43 - CHAIN HOIST-NASA #0824713-CLEAN LIN	2205	YES	TS 21112	CP-1014	TS-1787	3/14/98	FOSC	1 TON	CHAIN	CM (COLUMBUS McKINNION)
96A10240	L 5&6 -BRIDGE CRANE/AUX-FCPF	2205	NO	TS 1030	CP-1008	TS-1787	3/9/99	FOSC	15 TON/5 TON	9/16" / 7/16"	MILWAUKEE CRANE CO.
940894	L 7&8 - BRIDGE CRANE/AUX	2205	NO	TS 1027	CP-1008	TS-1787	4/10/01	FOSC	15 TON/5 TON	9/16" / 7/16"	NORTHERN CRANE CO.
96A10239	L 78 -JIB HOIST-WELD SHOP	2205	NO	TS 21112	CP-1014	TS-1787	5/15/98	FOSC	2 TON	CHAIN	CM (COLUMBUS McKINNION)
96A10291	L01 - MONORAIL HOIST TEST CELL-FCPF	2205	NO	TS 21112	CP-1014	TS-1787	6/20/98	FOSC	2 TON	5/16"	P&H
96A10234	L2-MONORAIL HOIST/JIB CRANE-FCPF	2205	NO	TS 21112	CP-1014	TS-1787	3/20/98	FOSC	2 TON	CHAIN	CM (COLUMBUS McKINNION)
96A10299	L 34 - MONORAIL HOIST	2402	NO	TS 21112	CP-1014	TS-1787	10/1/98	FOSC	6 TON	5/16"	ACCO-WRIGHT
96A10278	#56 - BRIDGE CRANE/AUXILIARY	3202	YES	TS 1074	CP-1008	TS-1787	11/2/98	ROCKETDYNE	25 TON/5 TON	7/16" / 5/8"	SHEPARD NILES
96A10314	#57 - BRIDGE CRANE/AUXILIARY	3202	YES	TS 1073	CP-1008	TS-1787	8/8/98	ROCKETDYNE	25 TON/5 TON	7/16" / 5/8"	SHEPARD NILES
96A10270	#58 - BRIDGE CRANE/AUXILIARY	3202	YES	TS 1073	CP-1008	TS-1787	11/2/98	ROCKETDYNE	25 TON/5 TON	7/16" / 9/16"	SHEPARD NILES
00962212	DERRICK	3203	NO	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	AMERICAN HOIST & DERRICK
00962213	DERRICK	3203	NO	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	AMERICAN HOIST & DERRICK
96A10215	#63 - BRIDGE CRANE/AUXILIARY-LOW BAY	3203	NO	TS 1080	CP-1008	TS-1787	4/4/01	NDBC	5 TON/1.5 TON	7/16" / 1/4"	CONCO ENGINEERING
96A10221	#64 - BRIDGE CRANE/AUXILIARY-HIGH BAY	3203	NO	TS 1411	CP-1008	TS-1787	6/1/98	NDBC	10 TON/3 TON	7/16" / 7/16"	CONCO ENGINEERING
96A10191	L 60 - GANTRY CRANE-HIGH BAY	3203	NO	TS 1079	CP-1008	TS-1787	9/16/98	NDBC	3 TON	1/2"	INTERCONTINENTAL ENGINEERING
96A10302	#65 - MONORAIL CHAIN HOIST	3304	NO	TS 21112	CP-1014	TS-1787	3/27/01	TSC	5 TON	CHAIN	CHESTER HOIST
96A10257	#68 - BRIDGE CRANE-LOWBAY	3305	NO	TS 1100	CP-1008	TS-1787	6/29/01	TSC	5 TON	3/8"	STEWARD BRIDGE CRANE
96A10635	L 14 - HOIST	3305	YES	TS 21112	CP-1014	TS-1787	10/15/98	TSC	1 TON	CHAIN	COFFIN
941538	91-1002 - BRIDGE CRANE	4050	NO	TS 1837	CP-1008	TS-1787	5/1/98	ECOMPLEX	5 TON	9/16"	DIXIE CRANE
941539	91-2002 - BRIDGE CRANE	4050	NO	TS 1836	CP-1008	TS-1787	5/1/98	ECOMPLEX	10 TON	9/16"	DIXIE CRANE
96A10303	L 17 - MONORAIL HOIST	4110	YES	TS 21112	CP-1014	TS-1787	1/18/99	TSC/RKDYN	2 TON	5/16"	ROBBINS MEYER
00962215	AUXILLIARY DERRICK	4120	NO	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	75 TON	3/4" (BOOM)/ 1" (MAIN)	AMERICAN HOIST & DERRICK
00962215	L 12 - DERRICK MAIN/JIB-LEVEL 10	4120	YES	TS 11120	CP-1009	TS-1787	1/22/99	TSC	**37.5 TON/5 TON	1"(BOOM) / 3/4"(JIB) / 7/8"(MAIN)	AMERICAN HOIST & DERRICK
96A10321	L15 - MONORAIL HOIST-LEVEL 7	4120	YES	TS 21112	CP-1014	TS-1787	1/11/99	ROCKETDYNE	10 TON	9/16"	P&H
96A10320	L16 - MONORAIL HOIST-LEVEL 4	4120	YES	TS 21112	CP-1014	TS-1787	9/21/98	ROCKETDYNE	3 TON	3/8"	ROBBINS MEYER
00962216	AUXILLIARY DERRICK	4122	NO	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	75 TON	3/4" (BOOM)/ 1" (MAIN)	AMERICAN HOIST & DERRICK
96A10599	L 40 - MONORAIL HOIST-LEVEL 7	4122	YES	TS 21112	CP-1014	TS-1787	8/30/98	ROCKETDYNE	10 TON	9/16"	P&H
96A10602	L 41 - MONORAIL HOIST-LEVEL 4	4122	YES	TS 21112	CP-1014	TS-1787	10/15/98	ROCKETDYNE	3 TON	3/8"	ROBBINS MEYER
96A10598	L 42 - MAIN DERRICK-LEVEL 10	4122	YES	TS 11120	CP-1009	TS-1787	11/3/98	TSC	**37.5 TON/5 TON	1"(BOOM) / 3/4"(JIB) / 7/8"(MAIN)	AMERICAN HOIST & DERRICK
96A10304	L 46 - MONORAIL HOIST/JIB CRANE	4210	NO	TS 21112	CP-1014	TS-1787	11/15/00	FOSC/TSC	2 TON	1/4"	SHEPARD NILES
96A10348	#26 & #27 - BRIDGE CRANE/AUXILIARY-WEST PI	4220	NO	TS 1029	CP-1008	TS-1787	5/5/99	FOSC/TSC/RKDYN	15 TON/5 TON	9/16" / 5/16"	MILWAUKEE CRANE CO.
00961932	BOOM CRANE - SOUTH FACE LEVEL 8	4220	NO	TS 1848	CP-1014	TS-1787	7/14/01	TSC	1/2 TON	1/2"	ALASKA MARINE CRANE
96A10577	DERRICK SYSTEM 175 TON	4220	YES	TS 1776	CP-1009	TS-1787	3/1/00	TSC	175 TON	1-1/8" / 1-1/8"	AMERICAN HOIST & DERRICK
96A10347	L 25 - HOIST - WEST PIER	4220	NO	TS 21112	CP-1014	TS-1787	8/1/98	FOSC/TSC/RKDYN	1/4 TON	3/8"	SHEPARD NILES
96A10691	MAIN DERRICK 200 TON	4220	YES	TS 1202	CP-1009	TS-1787	2/5/99	TSC/RKDYN	200 TON/20 TON	1-1/4"(BOOM) / 1"(JIB) / 1-1/8"(MAIN)	AMERICAN HOIST & DERRICK
00962214	HOIST - EAST PIER (SAME AS L 25)	4221	NO	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	DOWN MODED	1/4 TON	3/8"	SHEPARD NILES
96A10305	#44 - BRIDGE CRANE	4400	NO	TS 1161	CP-1008	TS-1787	6/20/98	TSC	10 TON	7/16"	CONCO ENGINEERING
96A10309	L 39 - MONORAIL HOIST	4400	NO	TS 21112	CP-1014	TS-1787	12/14/98	TSC	2 TON	CHAIN	WRIGHT
96A10308	L45 CHAIN HOIST	4400	NO	TS 21112	CP-1014	TS-1787	5/26/01	TSC	2 TON	CHAIN	BUDGET
96A10310	L 28 - HOIST	4995	NO	TS 21112	CP-1014	TS-1787	7/6/01	FOSC/TSC	1/2 TON	CHAIN	YALE
96A10329	#35 - MONORAIL HOIST-ROOM 134	8100	YES	TS 21112	CP-1014	TS-1787	8/3/98	NAVO	1 TON	5/16"	DRESSER INDUSTRIES
96A10340	#51 - BRIDGE CRANE-HIGH BAY	8100	NO	TS 1581	CP-1008	TS-1787	2/8/01	NAVO	5 TON	7/16"	MANNING, MAXWELL & MOORE
96A10336	#52 - BRIDGE CRANE - HIGH BAY	8100	NO	TS 1582	CP-1008	TS-1787	2/8/01	NAVO	15 TON	5/8"	MANNING, MAXWELL & MOORE
96A10330	L 54 - MONORAIL HOIST	8100	NO	TS 21112	CP-1014	TS-1787	10/14/98	NAVO	1/4 TON	3/16"	YALE
96A10332	L 55 - MONORAIL HOIST	8100	NO	TS 21112	CP-1014	TS-1787	5/1/98	NAVO	1/4 TON	3/16"	YALE
96A10346	L 62 - HOIST-ROOM 171	8100	YES	TS 21112	CP-1014	TS-1787	9/10/98	NAVO	1/2 TON	5/16"	LOADLIFTER
96A10335	L 69 - HOIST	8100	NO	TS 21112	CP-1014	TS-1787	7/20/98	NAVO	1/2 TON	1/4"	SHAW
96A10269	#66 - CHAIN HOIST	8304	NO	TS 21112	CP-1014	TS-1787	9/25/98	TSC	1 TON	CHAIN	INGERSOL RAND
96A10268	#67 - CHAINHOIST	8304	NO	TS21112	CP-1014	TS-1787	1/26/99	TSC	2 TON	CHAIN	COFFIN
	**MAIN DERRICK HAS BEEN DOWN RATED FROM 75 TON TO 37.5 TON										

Annex 5

Exhibit 2

Task Sheets

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E1-E25	1-30
EL1-EL3	31-33
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NG1-	96-
PW1-Pw4	97-100
SS1-SS5	101-106

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #E-1

13.8 KV System

AIR BREAK SWITCH, PAD MOUNTED

Task #1
Frequency-Semi-Annually(26 weeks)

Step	Step Description
1	Inspect switch operation by opening and closing switch, criticality codes
	I, II, & III only
2	Inspect switch contacts for pitting or wear, criticality codes I, II, & III only

Task # 2
Frequency - Annually (52 weeks)

Step	Step Description
1	Perform infrared analysis of switch contacts under load

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #E-2

13.8 KV System

Fuse Cutout

Task # 1

Frequency - Semi-annually (26 weeks)

Step	Step Description
1	Perform infrared analysis on fuse element, criticality codes I, II, & III only
2	Perform infrared analysis on cutout contact area, criticality codes I, II,
	& III only

Task # 2

Frequency - Annually (52 weeks)

Step	Step Description
1	Perform infrared analysis on fuse element, criticality code IV only
2	Perform infrared analysis on cutout contact area, criticality code IV only

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #E-3

13.8 KV System

Pole Mounted Gang Switch

Task # 1
Frequency - Semi-annually (26 weeks)

Step	Step Description
1	Perform infrared analysis on switch contacts & connectors, criticality
	codes I, II, & III only

Task # 2
Frequency - Annually (52 weeks)

Step	Step Description
1	Perform infrared analysis on switch contacts & connectors, criticality code - IV only

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #E-4

13.8 KV System

MAGNE-BLAST CIRCUIT BREAKER

Task # 1

Frequency - Biennially (104 weeks)

Step	Step Description
1	Wipe clean silver plated contacts & primary disconnect studs. Lubricate
	with D50H47
2	Lubricate operating mechanism by applying a light coat of machine oil
	SAE 20 or SAE 30 to the sleeve bearings; main crank shaft and driving
	pawl lever, roller and needle bearings.
3	Wipe clean and apply D50H47 to ground surfaces such as latches,
	rollers, props, etc.
4	Clean moisture, dust and smoke residue from bushings & all other
	insulation surfaces.
5	Inspect arc chutes for damage or contamination in the throat area.
6	Check operation of unit heaters.

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #E-5

13.8 KV System

SF6 Gas Switch

Task # 1

Frequency - Annually (52 weeks)

Step	Step Description
1	Perform infrared analysis of switch case and connectors
2	Inspect switch external linkage
3	Inspect switch grounding components
4	Check SF6 Gas pressure gage for out of tolerance reading

Task # 2

Frequency - Quinquennially (260 weeks)

Step	Step Description
1	Conduct resistance tests on switch contacts
2	Megger switch phase to phase and phase to ground

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #E-6

13.8 KV System

TRANSFORMER, PAD MOUNT

Task #1
Frequency - Annually (52 weeks)

Step	Step Description
1	Perform infrared analysis of connectors/terminals, case, & cooling fins/tubes.
2	Inspect transformer grounding components
3	Inspect transformer for evidence of corrosion
4	Check fans (if installed)
5	Inspect transformer for oil leaks & top off as necessary
6	Inspect pressure, level, & temperature gages for abnormal readings

Task #2
Frequency - Triennial (156 weeks)

Step	Step Description
1	Perform gas in oil analysis

Task # 3
Frequency - Six Years (312 weeks)

Step	Step Description
1	Measure winding resistance & compare to historical data
2	Conduct power factor test

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #E-7

13.8 KV System

Pole Mounted Transformer

Task # 1

Frequency - Annually (52 weeks)

Step	Step Description
1	Perform infrared analysis, criticality codes I, II, & III only

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #E-8

13.8 KV System

Recloser

Task # 1
Frequency - Quarterly (13 weeks)

Step	Step Description
1	Check battery voltage and charging current at test terminals or on meter

Task # 2
Frequency - Annually (52 Weeks)

Step	Step Description
1	Perform infrared analysis on recloser case and electrical connections
2	Trip recloser from controller panel to check trip solenoid
3	Cycle recloser to check solenoid fuse, rotary solenoid, closing solenoid, & high voltage contractor
4	Check operation of manual closing mechanism

Task # 3
Frequency - Triennially (156 Weeks)

Step	Step Description
1	Inspect recloser per manufacturers recommendations

Task # 4
Frequency - During Scheduled Removals

Step	Step Description
1	Bench check recloser current transformers

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #E-9

13.8 KV System

Miscellaneous Distribution System

Task # 1

Frequency - Annually (52 weeks)

Step	Step Description
1	Perform infrared analysis on critical lines, fittings, connectors, etc..
	Criticality codes I, II, & III only

Task # 2

Frequency - Quinquennially (260 weeks)

Step	Step Description
1	Inspect wooden poles for rot or other degradation
2	Tap each pole at 9 foot above grade for solid condition and soundness

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #E-10

13.8 KV System

Area Lighting

Task # 1

Frequency - Annually (52 weeks)

Step	Step Description
1	Functionally check operation of photocell controls. Replace if inoperative.
2	Functionally check operation of luminaries. Check for ballast noise and lamp are strike. Replace defective lamps, ballasts, or fuses.
3	Functional check shall be ground level with area lighting units energized.
4	Wire brush, paint and touch-up rusted or corroded areas on pole and/or luminaire body.

For Inoperative Area Lighting Units: Based on 2% Failure Rate/Year

Step	Step Description
1	Inspect each luminary housing, lens, reflector, for security of mounting and cleanliness.
2	Check ballast compartment for loose connections, frayed wiring and excessive heat. Correct all discrepancies. Restore unit to operational condition.

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #E-11

13.8 KV System

ELECTRIC METERS

Task # 1

Frequency -Quinquennially (260 weeks)

Step	Step Description
1	Calibrate Kwh meters installed at all locations on the 13.8 KV Electrical Distribution system .

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #E-12

13.8 KV Systems

Switch Boards and Distribution Panelboards

Task #1
Frequency- Annually (52 weeks)

Step	Step Description
1	Criticality Level I - III Inspect panel interior and exterior for damage, clean as necessary. Verify panel cover and latch operational.
2	Perform infrared analysis of panel.

Task #2
Frequency-Triennial (156 weeks)

Step	Step Description
1	Criticality Level I Sample test main circuit breaker trip function (use a statistically viable sample size). Verify unit meets specification values.

Task #3
Frequency-Six Years (312 weeks)

Step	Step Description
1	Criticality Level II and III Sample test main circuit breaker trip function (use a statistically viable sample size). Verify unit meets specification values.
2	Criticality Level IV and V Perform infrared analysis of panel.

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #E-13

13.8 KV Systems

Motor Control Centers

Task #1

Frequency- Annually (52 weeks)

Step	Step Description
1	Perform IR analysis of MCC circuit breakers, starter relamp and overload relamp.
2	Check functionality of panel lamps and replace as necessary.

Task #2

Frequency- Triennial (156 weeks)

Step	Step Description
1	Clean cubicle, inspect contractor and overload relay for damage or wear.
2	Conduct insulation resistance tests on components and bus network.
3	Operate "Hand-Off-Auto" switch and verify functionality.

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MAINTENANCE TASK SHEET #E-14

Emergency Electrical Lighting

Sitewide Electrical Emergency Lighting

Task #1

Frequency- Quarterly (13 weeks)

Step	Step Description
1	Perform functional check and visually check indicator lights for proper operate. Operate for a minimum of thirty (30) seconds. Replace bulbs as required.
2	Verify proper operation of automatic battery charger. (High-Rate Charging-red light; Ready Mode-yellow light)
3	Inspect battery terminals for cleanliness and corrosion. Clean the battery as required.
4	Inspect all electrical connections for tightness.
5	Inspect the main power cable and plug where applicable for defective insulation, and correct any discrepancies noted.
6	Visually inspect exit lights for burned out bulbs and replace as required.

Fluorescent Fixtures with Emergency Battery Packs

Task #2

Frequency- Semiannual (26 weeks)

Step	Step Description
1	Perform a walk-through inspection of all battery-equipped fluorescent fixtures to confirm charging indicator light is on at normal brightness.
2	Replace any defective, bulbs, battery pack or charging switch unit.
3	Verify all emergency lights are operational and maintain configuration for (30) thirty seconds. Correct all discrepancies.

MAINTENANCE TASK SHEET #E-14

Emergency Electrical Lighting

Emergency Lighting Systems with Battery Banks, Chargers

Task #3

Frequency- Annual (52 weeks)

Step	Step Description
1	Perform all quarterly and semi-annual cycle maintenance tasks.
2	Perform a 90 minute test per NFPA 101.
3	Perform load test on battery bank per equipment specifications and system requirements. Correct all discrepancies.
4	Return all equipment to normal configuration.

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MAINTENANCE TASK SHEET #E-15

13.8 KV Systems

Dry Type Transformers, 45 Kva and Above

Task #1

Frequency- Annually (52 weeks)

Step	Step Description
1	**Criticality Level I** Check transformer air flow, remove any obstructions and clean unit of dust or dirt buildup.
2	Measure and record primary and secondary voltages and currents.
3	Perform IR analysis.
4	Inspect terminal voltage taps and mounting hardware for looseness or physical degradation. Verify transformer ground.

Task #2

Frequency- Triennial (156 weeks)

Step	Step Description
1	**Criticality Level I - III** Measure insulation resistance on primary and secondary windings.
2	**Criticality Level II - III** Check transformer air flow, remove any obstructions and clean unit of dust or dirt buildup.
3	Measure and record primary and secondary voltages and currents.
4	Perform IR analysis.
5	Inspect terminal voltage taps and mounting hardware for looseness or physical degradation. Verify transformer ground.

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MAINTENANCE TASK SHEET #E-16

13.8 KV Systems

Uninterruptible Power Supplies (UPS) 3 Kva Above

Task #1
Frequency- Monthly (4 weeks)

Step	Step Description
1	Replace air filters, where applicable.
2	Check LEDs.
3	Check cooling fan operations.
4	Measure rectifier output voltage.

Task #2
Frequency- Annually (26 weeks)

Step	Step Description
1	Perform self-diagnostics test as recommended by manufacturer.

Task #3
Frequency- Triennially (156 weeks)

Step	Step Description
1	Place unit on maintenance bypass and safe. Inspect all internal power cables for overheating or other damage. Inspect all PC board connections and replace any detective inverter power assemblies. Note: Depending on power up access, an infrared scan of the unit can be substituted for visual inspection.
2	Inspect cooling fans for dust or dirt buildup, clean as necessary. Check for any impediments to rotations.

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MAINTENANCE TASK SHEET #E-17

13.8 KV Systems

Diesel Generators

Task #1

Frequency- Monthly (4 weeks)

Step	Step Description
1	Operate generator under load, check voltage and frequency.
2	Inspect visible wiring for damage.

Task #2

Frequency- Semi-Annually (26 weeks)

Step	Step Description
1	Wipe down generator, remove all dirt and debris.

Task #3

Frequency- Annually (52 weeks)

Step	Step Description
1	Perform IR analysis on generator.
2	Perform vibration analysis on generator.
3	Blow dust out of interior of generator.
4	Check all electrical connections, inspect insulation for fraying or heat damage.

Task #4

Frequency- Six Years (312 weeks)

Step	Step Description
1	Insulation resistance test stat or windings.
2	Insulation resistance test rotor windings.

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MAINTENANCE TASK SHEET #E-18

13.8 KV Systems

Cathodic Protection
Impressed Current Rectifier
Task #1
Frequency- Quarterly (13 weeks)

Step	Step Description
1	Clean interior unit.
2	Read and record output voltage and current values. Compare with previous readings. If readings are out of specified values, adjust rectifier output per manufacturer recommendations.
3	Inspect unit for arc damage or other component deterioration.
4	Check filler fuses (if so equipped). If fuse blows after replacement, replace capacitor.

Frequency- Annually (52 weeks)

Step	Step Description
1	Establish baseline and conduct annual infra-red tests of rectifier assembly (Look for variations from baseline – hot or cold spots).
2	Rectifiers with selenium rectifiers installed, conduct stack tests (forward voltage drop and reverse current leakage tests).
3	Rectifiers with silicon rectifiers installed, check surge suppression circuit for proper operation.
4	Check filler fuses (if so equipped). If fuse blows after replacement, replace capacitor.

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MAINTENANCE TASK SHEET #E-18

13.8 KV Systems

Impressed Current Anodes

Task #2

Frequency- Annually (52 weeks)

Step	Step Description
1	Inspect areas of the protected system and impressed current anodes for corrosion and condition of anodes, record results.
2	Measure anode to structure current and structure to soil potential and record results. Adjust rectifier taps to obtain a structure to soil potential of 0.85 V DC.

Sacrificial Anode System

Task #3

Frequency- Annually (52 weeks)

Step	Step Description
1	Inspect areas of the protected system and sacrificial anodes for corrosion and condition of anodes, record results.
2	Measure structure to soil potential and anode to soil potential and record results.
3	Measure anode to structure current and record results.

Task #4

Frequency- As Possible (During any planned excavations of buried systems)

Step	Step Description
1	Inspect excavated portions of buried systems during repair, modifications or other tasks that expose system components. Record inspection results for future actions and system history.

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MAINTENANCE TASK SHEET #E-19

13.8 KV Systems

Lightning, Grounding, and Surge Protection

Task #1

Frequency- Annually (52 weeks)

Step	Step Description
1	Inspect all conductors and system components are securely fastened to their mounting surfaces and are protected against mechanical displacement.
2	Check for loose connections that may result in high-resistance joints.
3	Check for parts of the system that may have been weakened by corrosion or vibration.
4	Check for any visual indication of damage to surge suppression (over voltage) devices.
5	Inspect to determine if the effectiveness of the lighting protection system has been altered due to additions to, or changes in, the structure.
6	Record results of the general condition of air terminals, conductors, and other system components.

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MAINTENANCE TASK SHEET #E-20

Fire Protect & Detect

Fire Alarm Central Console

Task #1

Frequency- Triennial (156 weeks)

Step	Step Description
1	Perform manufacturer recommended preventative maintenance inspection schedule.

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MAINTENANCE TASK SHEET #E-21

Fire Protect & Detect

Radio Frequency Transceivers - Fire

Task #1

Frequency- Triennial (156 weeks)

Step	Step Description
1	Perform manufacturer recommended preventative maintenance inspection schedule.

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MAINTENANCE TASK SHEET #E-22

Fire Protection & Detection Systems

Facility Fire Alarm Panels

Task #1

Frequency- Semi-Annually(26 weeks)

Step	Step Description
1	Notify Security Dispatcher at Building 2201 and Building occupants.
2	Check alarm lamps of the area control panel.
3	Check audible/visual circuits, place control panel in alarm for functional check, then reset to normal configuration.
4	Verify alarm sent to Security Dispatcher
5	Measure and record battery voltage under full load conditions with battery charger disconnected.
6	Correct all discrepancies and return system to normal configuration.
7	Notify Security Dispatcher - test complete.

MAINTENANCE TASK SHEET #E-22

Fire Protection & Detection Systems

Facility Fire Alarm Panels

Task #2

Frequency- Annually(52 weeks)

1	Notify Security Dispatcher at Building 2201 and Building occupants.
2	Check audible/visual circuits.
3	Operate each manual pull station. Verify area control panel is in alarm and reset after each manual pull station.
4	Activate each smoke detector. Verify area control panel is in alarm and reset after each smoke detector test.
5	Verify alarm sent to Security Dispatcher.
6	Place a "trouble" on area control panel; disable audible/visual devices.
7	Place each zone into alarm sequentially; reset the panel.
8	Measure and record battery voltage under full load conditions with battery charger disconnected.
9	Verify the conditions of the batteries; replace batteries if not operating properly.
10	Correct any discrepancies and return system to normal configuration.
11	Notify Security Dispatcher - test complete.
12	Review computer printout; verify alarms are in the same sequence as was performed in steps 3 and 4 above, and that the text matches schedule.

MAINTENANCE TASK SHEET #E-22

Fire Protection & Detection Systems

Facility Fire Alarm Panels

Task #3

Frequency- Tri-Annually(156 weeks)

Step	Step Description
1	Notify Security Dispatcher at Building 2201 and Building occupants.
2	Check audible/visual circuits.
3	Operate each manual pull station. Verify area control panel is in alarm and reset after each manual pull station.
4	Activate each smoke detector. Verify area control panel is in alarm and reset after each smoke detector test.
5	Verify alarm sent to Security Dispatcher.
6	Place a "trouble" on area control panel; disable audible/visual devices.
7	Place each zone into alarm sequentially; reset the panel.
8	Measure and record battery voltage under full load conditions with battery charger disconnected.
9	Verify the conditions of the batteries; replace batteries if not operating properly.
10	Correct any discrepancies and return system to normal configuration.
11	Notify Security Dispatcher - test complete.
12	Review computer printout; verify alarms are in the same sequence as was performed in steps 3 and 4 above, and that the text matches schedule.

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MAINTENANCE TASK SHEET #E-23

Fire Protection & Detection Systems

Facility Security Systems

Task #1

Frequency-Semi-Annually(26 weeks)

Step	Step Description
1	Notify Security Dispatcher at Building 2201 and building occupants.
2	Activate Security System. Verify area control panel is in alarm and reset security system after test.
3	Verify alarm sent to Security Dispatcher.
4	Correct all discrepancies and return system to normal configuration.
5	Notify Security Dispatcher - test complete.

Facility Security Systems

Task #2

Frequency-Annually(52 weeks)

Step	Step Description
1	Notify Security Dispatcher at Building 2201 and building occupants.
2	Activate Security System. Verify area control panel is in alarm and reset security system after test.
3	Verify alarm sent to Security Dispatcher.
4	Correct all discrepancies and return system to normal configuration.
5	Notify Security Dispatcher - test complete.

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MAINTENANCE TASK SHEET #E-24

Fire Protection & Detection Systems

Sprinkler and Suppression Systems

Task #1

Frequency- Semi-Annually(26 weeks)

Step	Step Description
1	Notify Security Dispatcher at Building 2201, Fire Chief and building occupants.
2	Verify PIV main riser valve and sprinkler control valve are locked & sealed in the open position.
3	Check all seals for tampering. If broken, reseal.
4	Open inspector's test valve to activate alarm and close valve after test.
5	Open two-inch drain valve and record static and residual pressures.
6	Reset all alarm systems.
7	Record any discrepancies.
8	Inspect all sprinkler heads for paint, dirt, insect nests of other deposits.
9	Notify Security Dispatcher and Fire Chief of any defects and discrepancies; assure corrective action proceeds immediately after test.
10	Notify Security Dispatcher and Fire Chief - test complete.

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MAINTENANCE TASK SHEET #E-24

Fire Protection & Detection Systems

Sprinkler and Suppression Systems

Task #2

Frequency- Annually(52 weeks)

Step	Step Description
1	Notify Security Dispatcher at Building 2201, Fire Chief and building occupants.
2	Verify PIV main riser valve and sprinkler control valve are locked & sealed in the open position.
3	Check all seals for tampering. If broken, reseal.
4	Open inspector's test valve to activate alarm and close valve after test.
5	Open two-inch drain valve and record static and residual pressures.
6	Reset all alarm systems.
7	Record any discrepancies.
8	Inspect all sprinkler heads for paint, dirt, insect nests of other deposits.
9	Notify Security Dispatcher and Fire Chief of any defects and discrepancies; assure corrective action proceeds immediately after test.
10	Notify Security Dispatcher and Fire Chief - test complete.

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MAINTENANCE TASK SHEET #E-25

Fire Protection & Detection Systems

Fire Hydrants & Post Indicator Valves

Task #1

Frequency- Semi-Annually(26 weeks)

Step	Step Description
1	Notify Security Dispatcher and Fire Chief at Building 2201.
2	Check hydrant barrel, head, operating nut, caps, and threads for leaks and defects.
3	Ensure all hose connections made to hydrants are secure before opening water valve.
4	Attach 2-1/2 inch hose to 2-1/2 inch outlet and open hydrant fully; direct water to drainage ditch or to other area to prevent property damage.
5	Verify proper flow of water. Close hydrant; note any leaks.
6	Notify Security Dispatcher and Fire Chief - test is complete.
7	Correct any discrepancies.
8	Notify Security Dispatcher and Fire Chief - test is complete.

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MAINTENANCE TASK SHEET #E-25

Fire Protection & Detection Systems

Fire Hydrants

Task #2

Frequency- Annually(52weeks)

Step	Step Description
1	Notify Security Dispatcher and Fire Chief at Building 2201.
2	Consult IFSTA Manual 205 Water Supplies (Second Edition) articles 33 and 34 - compute water flow in GPM and compute available water in a specified area.
3	Shut down hydrant, check draining system and replace caps.
4	Wire brush, paint and touch up rusted, corroded areas.
5	Notify Fire Chief of any discrepancies and make proper entries in daily log and/or records.
6	Notify Security Dispatcher and Fire Chief - test is complete.

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MAINTENANCE TASK SHEET #EL-1

Elevator Systems

Electric Traction

Task #1

Frequency-Annually (52 weeks)

Step	Step Description
1	Replace oil in all reservoirs, gearboxes, crankcases, buffers, oil cups, bearings and door operators. Replacement oil shall comply with equipment manufacturers' specifications.
2	Using a pressure gun, inject multipurpose grease into all grease fittings. For bearings with bottom plugs: Remove bottom plugs. Lubricate bearings until grease is forced out of the bottom holes. Run unit with bottom holes removed until grease stops coming out. Replace plug.
	For bearings without bottom plugs: Lubricate bearings until first sign of grease appears at either seal. Remove grease fitting to relieve the pressure. Operate with fitting removed until excess grease stops coming out. Replace grease fitting.
3	Apply a thin film of SAE-30 oil to all wear points including: mechanical linkages, pivots, guide rails, exposed gears, sprockets and chains.
4	Perform an Infrared Thermal Scan of all the elevator machine room control panels.

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MAINTENANCE TASK SHEET #EL-2

Elevator Systems

Electric Hydraulic

Task #1

Frequency-Annually (52 weeks)

Step	Step Description
1	Check hydraulic oil level in oil holding tank. Add oil if necessary. Replacement oil shall comply with equipment manufacturers' specifications.
2	Perform oil analysis on hydraulic oil. Based on analysis, replace oil as required.
3	Apply a thin film of SAE-30 oil to all wear points including: door tracks, closers, mechanical linkages and pivots.
4	Perform an Infrared Thermal Scan of all the elevator machine room control panels.

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MAINTENANCE TASK SHEET #EL-3

Elevator Systems

Dumbwaiter

Task #1

Frequency-Annually (52 weeks)

Step	Step Description
1	Using a pressure gun, inject multipurpose grease into all grease fittings. For bearings with bottom plugs: Remove bottom plugs. Lubricate bearings until grease is forced out of the bottom holes. Run unit with bottom holes removed until grease stops coming out. Replace plug. For bearings without bottom plugs: Lubricate bearings until sign of grease appears at either seal. Remove grease fitting to relieve the pressure. Operate with fitting removed until excess grease stops coming out. Replace grease fitting.
2	Apply a thin film of SAE-30 oil to all wear points including: door tracks, closers, mechanical linkages and pivots.

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MAINTENANCE TASK SHEET # EQ-1

Special Purpose Mobile Equipment

Fire Truck

Task # 1
Frequency – Quarterly (13 weeks)

Step	Step Description
1	Lubricate chassis and drive train
2	Check engine oil level

Task # 2
Frequency – Semi annually (26 weeks)

Step	Step Description
1	Change engine oil and filter
2	Lubricate motor fittings if applicable

Task # 3
Frequency – Annually (52 weeks)

Step	Step Description
1	Change transmission and read axle oil and filters
2	Repack wheel bearings
3	Replace engine antifreeze

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MAINTENANCE TASK SHEET # EQ-2

Special Purpose Mobile Equipment

Tour Bus

Task # 1
Frequency – Quarterly (13 weeks)

Step	Step Description
1	Lubricate chassis and drive train
2	Check engine oil level

Task # 2
Frequency – Semi annually (26 weeks)

Step	Step Description
1	Change engine oil and filter
2	Lubricate motor fittings if applicable

Task # 3
Frequency – Annually (52 weeks)

Step	Step Description
1	Change transmission and rear axle oil and filters
2	Repack wheel bearings
3	Replace engine antifreeze

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MAINTENANCE TASK SHEET # EQ-3

Special Purpose Mobile Equipment

Ambulance

Task # 1
Frequency – Quarterly (13 weeks)

Step	Step Description
1	Lubricate chassis and drive train
2	Check engine oil level

Task # 2
Frequency – Semi annually (26 weeks)

Step	Step Description
1	Change engine oil and filter
2	Lubricate motor fittings if applicable

Task # 3
Frequency – Annually (52 weeks)

Step	Step Description
1	Change transmission and rear axle oil and filters
2	Repack wheel bearings
3	Replace engine antifreeze

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MAINTENANCE TASK SHEET # EQ-4

Special Purpose Mobile Equipment

Light & Heavy Duty Trucks

Task # 1
Frequency – Quarterly (13 weeks)

Step	Step Description
1	Check engine oil

Task # 2
Frequency – Semi annually (26 weeks)

Step	Step Description
1	Change engine oil and filter
2	Apply grease to fittings

Task # 3
Frequency – Annually (52 weeks)

Step	Step Description
1	For automatic transmission change transmission oil and filter
2	Change engine antifreeze

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MAINTENANCE TASK SHEET # EQ-5

Special Purpose Mobile Equipment

Reach-All Bucket Truck

Task # 1
Frequency – Quarterly (13 weeks)

Step	Step Description
1	Check oil levels at axles, transmission, power take off case and engine crankcase
2	Check fluid levels in gear reduction boxes
3	Apply Heavy Duty Multipurpose Grease to the following Zerk fittings: A. Turntable bearing B. Turntable drive gearbox C. Lower boom pivot pin D. Lift cylinder pivots E. Elbow cylinder pivots F. Upper boom pivot pin G. PTO shaft H. Outrigger cylinder pivots I. Outrigger arm pivots
4	Apply Heavy Duty Multipurpose Grease to Turning Gear toothed surfaces
5	Check gearcase oil level on turntable drive gearbox; fill with SAE-140 oil
6	Check platform leveling gearbox oil level; fill with SAE-140 oil
7	Apply one or two drops of oil to Control valve linkage pivots.
8	Check engine oil level

Task # 2
Frequency – Semi annually (26 weeks)

Step	Step Description
1	Change engine oil and filter
2	Send vehicle off-site for PM on Hydraulics, Dielectric Testing and Load Test

Task # 3

Frequency – Annually (52 weeks)

Step	Step Description
1	Change oil in differentials, transmission and power take off case as per manufacturer's specifications
2	Drain and flush hydraulic reservoir; refill per manufacturer's specifications
3	Drain and flush cooling system

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MAINTENANCE TASK SHEET # EQ-6

Special Purpose Mobile Equipment

Altec Pole Truck

Task # 1
Frequency – Quarterly (13 weeks)

Step	Step Description
1	Check oil levels at axles, transmission and power take off case and engine crankcase

Task # 2
Frequency – Semi annually (26 weeks)

1	Change engine oil and filter
2	Perform on the chassis winch and turntable winch: A. Check gear box oil level; fill as required. B. Lubricate outboard shaft bearings. C. Lubricate worm bearings
3	Perform on the outriggers: A. Lubricate outrigger valve handle linkage B. Lubricate outrigger leg outer surface
4	Perform on the Turntable: A. Check rotation gear box oil level B. Lubricate rotation bearing bull gear teeth C. Lubricate rotation box pinion gear teeth D. Lubricate rotary joint E. Lubricate rotation gear box pinion shaft upper bearing F. Lubricate rotation bearing ball race
5	Lubricate lift cylinder pivot bearings
6	Lubricate 2nd stage winch rope rollers
7	Lubricate 2nd stage boom outer surfaces
8	Lubricate 3rd stage slide bearing pivot point
9	Lubricate auger stow switch plunger
10	Lubricate boom stow switch plunger
11	Perform on pole guide: A. Lubricate pole guide tilt pivot pins B. Lubricate pole guide rack and gear teeth

12	Apply anti-seize lubricant to transferable tip pins and bosses
13	Perform on the auger assembly: A. Lubricate auger stowage bracket latch B. Lubricate auger wind-up cable
14	Perform on the digger assembly: A. Check digger motor oil level B. Lubricate digger link detent paddle C. Lubricate digger link pivot pins

Task # 3
Frequency – Annually (52 weeks)

Step	Description
1	Replace engine antifreeze
2	Drain differentials, transmission and power take off case and refill as per manufacturer's specifications
3	Drain and flush hydraulic reservoir; refill per manufacturer's specifications
4	Clean/change reservoir filler hole strainer

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MAINTENANCE TASK SHEET # EQ-7

Special Purpose Mobile Equipment

Semi-Trailers

Task # 1

Frequency – Semi annually (26 weeks)

Step	Step Description
1	Lubricate kingpin and plate, ball receptacle if applicable, gooseneck fittings, front dolly gear boxes, brake linkage and chassis components per manufacturer's specifications
2	Lubricate air brake slack adjusters

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MAINTENANCE TASK SHEET # EQ-8

Special Purpose Mobile Equipment

Forklifts, Gasoline and Diesel

Task # 1

Frequency – Semi annually (26 weeks)

Step	Description
1	Lubricate all grease fittings with multipurpose grease
2	Check transmission oil level
3	Check differential oil level
4	On Clark forklift NL 120-116 only, check oil level in the wheel planetary hub
5	Change engine oil and filter
6	Check lubricant in steering box
7	Check fluid level of hydraulic tank
8	Apply grease, multipurpose to mast slide bars with brush

Task # 2

Frequency – Annually (52 weeks)

Step	Description
1	Drain transmission and replace transmission filter and refill
2	Drain and flush cooling system
3	Check hydraulic fluid for metal shavings and other contamination
4	Drain and flush hydraulic system, if required, replace hydraulic fliter and refill. Operate hydraulic system to remove air.

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MAINTENANCE TASK SHEET # EQ-9

Special Purpose Mobile Equipment

Hydraulic Mobile Cranes

Task # 1
Frequency – Monthly (40 hour)

Step	Description
1	Boom and Cab: A. Lubricate fittings and slider pads with multipurpose grease B. Lubricate swing gear with wire rope grease C. Check swing reducer gear oil level
2	Engine: A. Check oil level

Task # 2
Frequency – Quarterly (100 hour)

Step	Description
1	Carrier: A. Lubricate fittings with multipurpose grease B. Check the clutch master cylinder fluid lever
2	Engine: A. Change the crankcase oil and filter

Task # 3
Frequency – Semiannual (200 hour)

Step	Description
1	Collector Ring: A. Lubricate the collector ring base wit multipurpose grease
2	Carrier: A. Remove and replace the hydraulic tank filters B. Check fluid levels of the main and auxiliary transmissions C. Check the rear axles fluid levels D. Drain fuel tank of water or sediment
3	Engine: A. Lubricate alternator bearings B. Lubricate the throttle control mechanism

4	Jib Attachment: A. Lubricate bearings on the jib pulley using multipurpose grease

Task # 4
Frequency – Annual (500 hour)

Step	Description
1	Winches: A. Check fluid level
2	Carrier: A. Drain and refill the hydraulic tank B. Repack all axle wheel bearings with heavy duty grease
3	Engine: A. Lubricate the over-speed governor
4	Differential: A. Drain and refill the rear differential
5	Transmission: A. Drain and refill the main and auxiliary transmissions
6	Proof test as specified in MI CP-1001

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MAINTENANCE TASK SHEET # EQ-10

Special Purpose Mobile Equipment

Personnel Lift

Task # 1
Frequency – Quarterly (13 weeks)

Step	Description
1	Chassis and Drive Train: A. Apply multipurpose grease to swing bearing and all grease fittings B. Check oil level in wheel hubs C. Apply spray-dry graphite to the swing pinion and swing bearing gears D. Check oil level in winch drive E. Extend axles an apply spray-dry graphite or molylube
2	Gasoline Engine: A. A. Check engine oil level
3	Hydraulic and Boom System: A. Check hydraulic oil level on the sight gauge

Task # 2
Frequency – Annually (52 weeks)

Step	Description
1	Chassis and Drive Train: A. Change fluid in winch drive and power hubs
2	Gasoline Engine: A. Change engine oil and filter
3	Hydraulic and Boom System: A. Drain hydraulic system and flush if fluid shows dirt or contamination B. Remove and replace hydraulic oil filter

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MAINTENANCE TASK SHEET # EQ-11

Special Purpose Mobile Equipment

Caterpillar Excavator

Task # 1
Frequency – Quarterly (13 weeks)

Step	Description
1	Check engine oil
2	A. Check oil level in final drives
3	Check oil level I swing drive
4	Lubricate the swing bearing grease fittings located under the boom base
5	Check the hydraulic oil tank level
6	Apply multipurpose grease to all fittings

Task # 2
Frequency – Semi annually (26 weeks)

Step	Description
1	Check radiator coolant level
2	Drain water and sediment from fuel tank
3	Lubricate the swing internal gear

Task # 3
Frequency – Annually (52 weeks)

Step	Description
1	Change radiator coolant
2	Change engine oil and filter
3	Change the oil in the final drives
4	Change the oil in the swing drive
5	Drain hydraulic oil and run oil through the hydraulic oil filterization system to clean oil

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MAINTENANCE TASK SHEET # EQ-12

Special Purpose Mobile Equipment

Trashmaster Compactor

Task # 1
Frequency – Quarterly (13 weeks)

Step	Description
1	Lubricate fittings on compactor (including center articulation joint, steering cylinders, blade lift cylinders and blade pivot points) with general purpose grease
2	A. Check transmission fluid condition and level
3	Check differential oil level
4	Drain crankcase oil, replace oil and filter and refill with SAE-15W40 diesel oil
5	Drain water and sediment from fuel-water filter
6	Check front and rear planetary wheel end oil level
7	Check hydraulic tank level
8	Check coolant cleanliness and specific gravity. Replace and flush if necessary

Task # 2
Frequency – Annually (52 weeks)

Step	Description
1	Drain transmission, remove and replace filter. Check transmission fluid condition. Replace and flush if necessary.
2	A. Drain and flush hydraulic system, change hydraulic filter and refill

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MAINTENANCE TASK SHEET # EQ-13

Special Purpose Mobile Equipment

Utility Trailers

Task # 1

Frequency – Semi annually (26 weeks)

Step	Description
1	Lubricate the spring hanger bushings with grease
2	Lubricate landing gear with grease
3	Apply oil to parking brake hinge points and cables

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MAINTENANCE TASK SHEET # EQ-14

Special Purpose Mobile Equipment

Caterpillar Tractor/Dozer

Task # 1

Frequency – Quarterly (13 weeks)

Step	Description
1	Check diesel engine crankcase oil level
2	Lubricate track roller frame inner bearings (2 fittings) with multipurpose grease with molybdenum
3	Lubricate track roller frame outer bearings (2 fittings) with multipurpose grease with molybbenum
4	Lubricate track cylinder support and upper trunnion bearings (8 fittings) with multipurpose grease with molybdenum
5	Check hydraulic control system oil level
6	Lubricate dozer blade tilt brace (2 fittings) with multipurpose grease with molybdenum
7	Lubricate dozer blade tilt ball and socket (2 fittings) with multipurpose grease with molybdenum
8	Lubricate sprocket hub bearings with multipurpose grease with molybdenum
9	Check final drives (each side) oil level
10	Check cable control gear case oil level
11	Check transmission, bevel gear and steering clutch compartment oil level

Task # 2

Frequency – Annually (52 weeks)

Step	Description
1	Check hydraulic control system filter elements
2	Drain diesel fuel tank moisture and sediment and wash cap
3	Check diesel engine valve lash; adjust if necessary

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MAINTENANCE TASK SHEET # EQ-15

Special Purpose Mobile Equipment

Front End Loaders

Task # 1
Frequency – Monthly (4 weeks)

Step	Description
1	Lubricate fittings per mfg specification
2	A. Check hydraulic fluid level (with bucket on ground)
3	Check transmission fluid level
4	Lubricate loader control level linkage assembly
5	Check engine oil level

Task # 2
Frequency – Quarterly (13 weeks)

Step	Description
1	Change engine oil and filter
2	Change final drive lube levels
3	Check fluid level at front and rear differentials
4	Check radiator coolant

Task # 3
Frequency – Annually (52 weeks)

Step	Description
1	Drain hydraulic system sump, install new steering filter and refill
2	A. Drain transmission, install new filter and refill
3	Drain front and real differentials and refill

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MAINTENANCE TASK SHEET # EQ-16

Special Purpose Mobile Equipment

Portable Generator

Task # 1
Frequency – Bi-Weekly (2 weeks)

Step	Description
1	Check crankcase oil level/ add SAE-30 engine oil diesel
2	Check radiator coolant level
3	Check generator bearing oil level; SAE-30 engine oil

Task # 2
Frequency – Semi annually (26 weeks)

1	Check crankcase oil level and cleanliness

Task # 3
Frequency – Annually (52 weeks)

1	Drain crankcase and replace oil filter. Refill crankcase with SAE-30 engine oil diesel.
2	Change generator bearing oil; SAE-30 engine oil.

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MAINTENANCE TASK SHEET # M-1

Centrifugal Chiller

Task #1

Frequency- Semi-Quarterly (45 days) – compressor speeds 5000rpm & greater

Quarterly (13 weeks) – compressor speeds below 5000 rpm

Step	Description
1	Log chiller condition upon arrival to job site and prior to the start of any work.
2	Perform vibration analysis per vibration analysis specifications in **EXHIBIT II**, including evaluation of the data from the analysis, and compiling a report of the findings and recommendations.
3	Pull oil sample and perform an oil analysis per specifications in attachment **EXHIBIT II**, including evaluation of the data and a report of the findings and recommendations.
4	Change oil and replace filters as required, based on oil analysis. Filters shall be replaced on frequency no greater than 36 months (Analysis quarterly report shall indicate the date of the last oil change). Only OEM specified oils shall be used (No substitutes shall be allowed).
5	Perform leak check for refrigerant.

Task #2

Frequency- Annually (52weeks)

Step	Description
1	Log chiller condition upon arrival to job site and prior to the start of any work.
2	Obtain refrigerant sample and perform a refrigerant analysis to check for acid and/or moisture. Verify compliance with ARI 700; change filter-dryers and/or refrigerant as required to bring refrigerant within ARI standard (Confirmed by analysis).
3	Functionally test, check, clean, tighten, and calibrate all safeties, interlocks, electrical connections/controls, gauges and meters associated with the chiller and chiller motor control center switch gear and starter.
4	Functionally test all motor electrical safety voltage and current devices, i.e., dash pot relays, single-phase protection devices, and voltage

	protection relays. Perform both load test and voltage test to devices to assure functionality and calibration. Perform thermography on motor controller and associated wiring connections (from line feed terminals to the equipment load).
5	Visually inspect compressor motor and oil pump motor terminals and connections. Meg test compressor and oil pump motor. Perform Motor Current Signature Analysis on compressor motor.
6	Check all refrigerant, oil, chilled water, and condenser water operating temperatures, pressures and flows associated with the chiller during normal operation and verify that all are within manufacturer's recommended parameters. Verify chilled water and condenser water flows are within manufacturer's design. Test the operation of all flow switches, high/low oil switch, high/low compressor discharge and suction refrigerant pressure switches, and operation of all pump auxiliary contacts.
7	Inspect and leak check/test for any refrigerant or oil leaks.
8	Check for proper superheat and subcooling, (refrigerant charge).
9	Verify and test for proper operation of gear case and oil sump heaters. Verify for proper control of temperature.
10	Verify proper operation of the vane control system. Check for free and smooth operation.
11	Start and stop chiller and verify for proper sequence of operation relative to transition of motor starters and post and pre lube oil pump motor operation. Verify operation of start/stop and anti-recycle timers.
12	Verify working condition of all indicator and alarm lights.
13	Functionally check for the proper operation of all chiller auxiliary equipment. Verify proper operation of chilled water pump, condenser water pump and cooling tower.
14	Functionally check operation of the condenser water tube brush cleaning system(where applicable).
15	Functionally check operation of the condenser water cooling tower bypass valve.
16	Functionally test and calibrate the local refrigerant leak detection, refrigerant emergency exhaust fan and alarm system (where applicable).
17	Functionally test and verify for proper operation of the chiller purge system and replace refrigerant dryers (where applicable).
18	Functionally test and verify for proper operation of the chiller hot gas bypass system and associated controls (where applicable).
19	Check the equipment room, the chiller, the piping system and associated equipment for rust and corrosion. Clean, paint and repair damaged or corroded surfaces and insulation.
20	Remove trash, dust and debris from equipment cabinets, surfaces and equipment room.
21	Provide a complete inspection/analysis report relative to all work/task

	performed upon completion. Provide also a report of all discrepancies found as a result of all inspections and analysis along with corrective actions taken and/or recommended corrections or modifications.

Task #3
Frequency- 5 Years (260 weeks)

The following requirements shall be performed on each chiller every five (5) years (maximum allowed time span between analysis for a chiller). This work shall be scheduled such that the procedures will be performed on approximately the same number of chillers each fiscal year, and all chillers shall be covered over a five year period.

Step	Description
1	Clean and check chiller tubing banks: chilled water tubing and condenser water tubing (where applicable).
2	Perform eddie current tubing analysis.
3	Provide a complete inspection/analysis report relative to all work/task performed upon completion. Provide also a report of all discrepancies found as a result of all inspections and analysis along with recommended additional testing, corrections or modifications.

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MAINTENANCE TASK SHEET # M-2

Reciprocating Chiller

Task #1

Frequency- Annual (52weeks)

Step	Description
1	Log chiller condition upon arrival to the job site and prior to start of any work. Inspect for vibrations, unusual noises, etc.
2	Pull oil sample and perform a complete oil analysis. Compile a report of the findings and evaluation of the data from the analysis (Shall meet requirements of **EXHIBIT II**).
3	Obtain refrigerant sample and perform a refrigerant analysis to check for acid and/or moisture.
4	Change oil and filter elements (oil and refrigerant), as determined by oil and refrigerant analysis.
5	Check all refrigerant, oil, chilled water, and condensing water operating temperatures, pressures and flows associated with the chiller during normal operation and verify that all are within manufacturer's recommended parameters. Verify chilled water and condenser water flows are within manufacturer's design. Test the operation of all flow switches, high/low oil switch, high/low compressor discharge and suction refrigerant pressure switches, and operation of all pump auxiliary contacts. Calibrate as needed.
6	Check all motor electrical connections, safety voltage and current devices, starters, etc. Perform thermography on motor controller and associated wiring and connections (from line feed terminals to the equipment load).
7	Meg test compressor motors.
8	Check motor shafts and alignment, as applicable.
9	Lubricate rotating and moving components, as applicable.
10	Switch the lead-lag compressor, as applicable.
11	Check for refrigerant and oil leaks.
12	Clean air cooled condenser coils (where applicable).
13	Check for proper refrigerant charge, superheat and subcooling.
14	Functionally check controls: chilled water temperature, hot gas bypass,

	low ambient controls, condenser water cooling tower bypass, pump interlocks, etc., as applicable.
15	Check the equipment room, the chiller and associated equipment for rust and corrosion. Clean, paint and repair damaged or corroded surfaces and insulation.
16	Remove trash, dust and debris from the equipment cabinets, surfaces and equipment room.
17	Check chilled water piping system and peripheral equipment for proper operation, for damage, leaks, rust and corrosion. Clean, paint and repair damaged or corroded equipment and components as applicable.

Task #2

Frequency- 5 Years (260 weeks)

The following requirements shall be performed on each chiller every five (5) years (maximum allowed time span between analysis for a chiller). This work shall be scheduled such that the procedures will be performed on approximately the same number of chillers each fiscal year, and all chillers shall be covered over a five year period.

Step	Description
1	Clean and check chiller tubing banks: chilled water tubing and condenser water tubing (where applicable).
2	Perform eddie current tubing analysis.
3	Provide a complete inspection/analysis report relative to all work/task performed upon completion. Provide also a report of all discrepancies found as a result of all inspections and analysis along with recommended additional testing, corrections or modifications.

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MAINTENANCE TASK SHEET # M-3

Cooling Tower – gear drive

Task #1

Frequency- Quarterly (13 weeks)

Step	Description
1	Perform Vibration Analysis (per **EXHIBIT III**). Initiate corrective actions as applicable.

Task #2

Frequency- Annual (52 weeks)

Step	Description
1	Check equipment and piping for leaks.
2	Clean towers including inside basins, packing, eliminators, structural components and tower exterior, removing scale, corrosion and debris.
3	Check tower (interior and exterior) and piping for rust, corrosion and leaks. Clean paint and repair surfaces, insulation and sealants.
4	Check bearings and rotating equipment: vibration, noise, overheating, etc.
5	Check fan assembly: Fan, screens, louvers, stack, etc.
6	Lubricate motors and other moving components (where applicable)
7	Check gear oil (where applicable). Replace as required (5 year maximum time span between gear oil change out).
8	Check sump heaters and electrical pipe trace heating (where applicable).
9	Check electrical connections. Perform thermography on motor starter panel.
10	Functionally verify proper operation of controls and instrumentation.
11	Check make-up water valve operation.
12	Remove trash and debris from cooling tower pad/area.

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MAINTENANCE TASK SHEET # M-4

Cooling Tower – belt driven fan

Task #1
Frequency- Quarterly (13 weeks)

Step	Description
1	Check belts: vibration, noise, alignment, wear, etc. Perform adjustments and replace belts as required. Perform vibration analysis (per **EXHIBIT III**).

Task #2
Frequency- Annual (52 weeks)

Step	Description
1	Check equipment and piping for leaks.
2	Clean towers including inside basins, packing, eliminators, structural components and tower exterior, removing scale, corrosion and debris.
3	Check tower (interior and exterior) and piping for rust, corrosion and leaks. Clean paint and repair surfaces, insulation and sealants.
4	Check bearings and rotating equipment: vibration, noise, overheating, etc.
5	Check fan assembly: Fan, screens, louvers, stack, etc.
6	Lubricate motors and other moving components (where applicable).
7	Check sump heaters and electrical pipe trace heating (where applicable).
8	Check electrical connections.
9	Functionally verify proper operation of controls and instrumentation.
10	Check make-up water valve operation.
11	Remove trash and debris from cooling tower pad/area.

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MAINTENANCE TASK SHEET # M-5

Gas Boiler/Heating Water

Task #1
Frequency- Monthly (4.3 weeks)

This task applies during periods of operation only.

Step	Description
1	Observe condition of flame. Correct if flame is smokey or if burner starts with puff.
2	Check for signs of improper operation: burned or damaged paint, sooting, rust, condensate damage, burner short-cycling, leakage, etc.
3	Check flame detection devices and associated automatic fuel cut off valves. Loss of flame should shut off flow of fuel to burner.

Task #2
Frequency- Annual (52 weeks)

Step	Description
1	Functionally test, check, clean, tighten, and calibrate all safeties, interlocks, electrical connections/controls, gauges, meters and fittings associated with the boiler.
2	Inspect water piping for leaks.
3	Lubricate motors and other moving components, as applicable.
4	Clean interior of boiler and remove loose scale, soot, slag or similar deposits.
5	Examine interior of boiler for corrosion or damage. Check refractory, insulations and expansion joints for cracking and damage. Repair as applicable.
6	Check tube ends for corrosion and leakage. If leaks are found, investigate rerolling or rebeading before planning for replacement.
7	Check exterior surfaces of boiler for corrosion or damage. Clean, paint, refinish, reinsulate or otherwise repair surfaces, as applicable.
8	Check pressure relief valves.
9	Check gas piping and valves for leaks using soap solution.
10	Check breaching and stack for integrity and tightness.
11	Remove dust, trash and debris from boiler cabinets, surfaces and form

	the boiler room.
12	Check combustion ventilation to assure unobstructed.
13	Conduct combustion efficiency test and adjust burner for efficient safe operation. Combustion measurements required are %CO, %CO2, %O2, stack temperature, and boiler room temperature. Combustion shall be checked under all operating conditions (e.g., within a given mechanical room, combustion shall be tested with individual boiler operation and simultaneous operation).
14	Provide a complete inspection/analysis report relative to all work/task performed upon completion. Also provide a report of all discrepancies found as a result of all inspections and analysis along with recommended corrections or modifications.

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MAINTENANCE TASK SHEET # M-6

Electric Boiler/ Heating Water

Task #1

Frequency- Annual (52 weeks)

Step	Description
1	Functionally test, check, clean, tighten, and calibrate all safeties, interlocks, heating elements, electrical connections/controls, gauges, meters and fittings associated with the boiler.
2	Inspect water piping for leaks.
3	Lubricate motors and other moving components, as applicable.
4	Clean interior of boiler and remove loose scale and other deposits.
5	Examine interior of boiler for corrosion or damage. Repair as applicable.
6	Check exterior surfaces of boiler for corrosion or damage. Clean, paint, refinish, reinsulate or otherwise repair surfaces, as applicable.
7	Check pressure relief valves.
8	Remove dust, trash and debris from boiler cabinets, surfaces and form the boiler room.

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MAINTENANCE TASK SHEET # M-7

Condenser Water Chemical Treatment System

Task #1

Frequency- Quarterly (13 weeks)

Step	Description
1	Functionally check operation of the chemical injection sensors and controls. Verify proper calibration/operation of sensors, injector pumps, blow down valves, etc.
2	Check chemical containers, suction and discharge lines for leaks. Tighten fittings and replace deteriorated tubing and fittings as required.

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MAINTENANCE TASK SHEET # M-8

Pump

Task #1

Frequency- Quarterly (13 weeks)

Step	Description
1	Check pumps and components for excessive noise, vibration, overheating, etc.
2	Perform vibration analysis on pump and motor (shall meet requirements of **EXHIBIT II**).
3	Based on vibration analysis results, lubricate, realign, etc, as required.
4	Provide a complete analysis evaluation of the vibration testing, and enter into the signature database.

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MAINTENANCE TASK SHEET # M-9

Air Handling Unit

Task #1
Frequency- Quarterly (13weeks)

Step	Description
1	Check equipment for proper operation.
2	Replace throw-away filters or clean permanent filters.

Task #2
Frequency-Annual (52 weeks)

Step	Description
1	Clean and flush cooling coils, condensate drain pans and drain lines.
2	Clean heating coils, dampers, screens, plenums, etc., as applicable.
3	Check electrical connections.
4	Check fans and motors for excessive noise, vibration, heat, etc.
5	Lubricate electrical motors, as applicable.
6	Functionally check controls.
7	Check belts, replace as required.
8	Check guards and covers.
9	Check piping and valves for leaks.
10	Check for rust and corrosion. Clean, paint and repair damaged or corroded surfaces and insulation.
11	Remove trash, dust and debris from equipment and equipment room.

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MAINTENANCE TASK SHEET # M-10

Heating Ventilation Unit (HVU)

Task #1
Frequency- Biannually (26weeks)

Step	Description
1	Check equipment for proper operation.
2	2. Replace throw away filters or clean permanent filters.

Task #2
Frequency-Annual (52 weeks)

Step	Description
1	Inspect heating coils, dampers, screens, plenums, etc., clean as required
2	Check electrical connections.
3	Check fans and motors for excessive noise, vibration, heat, etc.
4	Lubricate electrical motors, as applicable.
5	Functionally check controls.
6	Check belts, replace as required.
7	Check guards and covers.
8	Check piping and valves for leaks.
9	Check for rust and corrosion. Clean, paint and repair damaged or corroded surfaces and insulation.
10	Remove trash, dust and debris from equipment and equipment room.

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MAINTENANCE TASK SHEET # M-11

Computer Room Unit (CRU)

Task #1
Frequency- Quarterly (13 weeks)

Step	Description
1	Check unit for proper operation.
2	Replace throw-away filters or clean permanent filters.

Task #2
Frequency- Biannual (26 weeks)

Step	Description
1	Check fans, compressors and motors for excessive noise, vibration, heat, etc.
2	Check cooling coils, heating coil/elements and condensate pans and drain lines.
3	Check condenser unit (where applicable).
4	Clean and check humidifier (where applicable).
5	Check belts.
6	Check piping and valves for leaks.

Task #3
Frequency- Annual (52 weeks)

Step	Description
1	Clean and flush coils, condensate pans and drain lines.
2	Clean condenser coils, heating coils/elements, dampers, screens, plenums, etc., as applicable.
3	Clean and functionally check humidifier (where applicable).
4	Check electrical connections.
5	Lubricate electrical motors, as required.
6	Functionally check controls.
7	Check guards and covers.
8	Check refrigerant charge (where applicable).
9	Check for rust and corrosion. Clean, paint and repair damaged or corroded surfaces and insulation.
10	Remove trash, dust and debris from equipment and equipment room, as

	applicable.

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MAINTENANCE TASK SHEET # M-12

RTU, Packaged and Unitary Units (DX type units)

Task #1
Frequency- Quarterly (13 weeks)

Step	Description
1	Check equipment for proper operation.
2	Check for signs of refrigerant leakage or loss, as applicable.
3	Replace throw-away filters or clean permanent filters.

Task #1
Frequency- Annual (52 weeks)

Step	Description
1	Clean and flush coils, condensate pans and drain lines.
2	Clean condenser coils, heating coils/elements, dampers, screens, plenums, etc., as applicable.
3	Check electrical connections.
4	Check fans, compressors and motors for excessive noise, vibration, heat, etc.
5	Lubricate electrical motors, as required.
6	Functionally check controls.
7	Check belts, as applicable.
8	Check guards and covers.
9	Check piping and valves for leaks.
10	Check refrigerant charge.
11	Check for rust and corrosion. Clean, paint and repair damaged or corroded surfaces and insulation.
12	Remove trash, dust and debris from equipment and equipment room, as applicable.

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MAINTENANCE TASK SHEET # M-13

Gas Unit Heater

Task #1

Frequency- Annual (52 weeks)

Step	Description
1	Functionally check controls and operation of the unit.
2	Visually inspect the unit for corrosion or damage which could lead to improper combustion or fire hazards.
3	Clean, paint and repair damaged or corroded surfaces and insulation.

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MAINTENANCE TASK SHEET # M-14

Fan, Blower or Vent

Task #1

Frequency- Annual (52 weeks)

Step	Description
1	Functionally check operation of the unit.
2	Visually inspect the unit for corrosion or damage. Clean, paint and repair damaged or corroded surfaces and insulation.
3	Inspect belts (where applicable) and replace as required.

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MAINTENANCE TASK SHEET #M-15

Air Compressor

Task #1
Frequency-Quarterly (13 weeks)

Step	Description
1	Check oil. Inspect for contamination and add or change oil if necessary.
2	Check for oil leaks.
3	Drain tank and check all filters/traps. Functionally check operation of automatic tank blowdown (where applicable).
4	Check belts and sheaves.
5	Lubricate motor and other rotating components, as applicable.
6	Check electrical connections, contacts and components.
7	Check suction filter.
8	Check high pressure relief valve.
9	Check high pressure shut-off switch.
10	Check unloader and check valve.
11	Check operation of refrigerant air dryer (where applicable).
12	Check operation of drain trap on air dryer (where applicable).
13	Inspect for rust and corrosion. Touch up paint and repair as required.
14	Remove any dust and debris.

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MAINTENANCE TASK SHEET # M-16

Kitchen Exhaust Hood

Task #1

Frequency- Annual (52 weeks)

Step	Description
1	Functionally check operation of the unit.
2	Visually inspect the unit for corrosion or damage. Clean, paint and repair damaged or corroded surfaces and insulation.
3	Clean hood ductwork and fan to remove grease and dust build-up.
4	Inspect belts (where applicable) and replace as required.

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MAINTENANCE TASK SHEET # M-17

Walk-in Cooler (Refrigerator or Freezer)

Task #1

Frequency- Annual (52 weeks)

Step	Description
1	Functionally check operation of the unit.
2	Check refrigerant.
3	Check doors for proper sealing.
4	Verify proper entryway heating element operation (where applicable).
5	Clean condenser coils.
6	Inspect evaporator coils and clean as required.
7	Visually inspect the unit for corrosion or damage. Clean, paint and repair damaged or corroded surfaces and insulation.

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #MO-1

Marine Operations System

Task #1
Frequency: Annual

Docks:
Construction dock
B-3202 to B-3200 dock including marine ops building
"Lox and hydrogen docks @ A-1, A-2 & B-Test Stands"
ASRM dock
Lox storage dock on D-road
Hydrogen storage dock on D-road

Step	Description
1	"Inspect fender piling for rot, damage and stability"
2	Inspect piling metal caps for mounting security and damage
3	Inspect toe railings (typ. 12 x 12 inch wood) along dock edge "for damage, rot and deterioration"
4	Inspect buffer railings (typ. 12 x 12 inch wood) between fender piling and dock for deterioration
5	Inspect mooring bollards for general condition and mounting security
6	"Inspect sheet piling for corrosion, deformation and damage"
7	Inspect ladders for damage and security of mounting
8	"Inspect gravel fill and/or concrete cap for smoothness, erosion or subsidence"
9	Inspect countersunk bolts and fasteners for corrosion and make certain they are countersunk below the surface of the timbers
10	"Inspect mooring cavils, cleats, bollards and posts for corrosion, security, "and for loose grout and fasteners for corrosion
11	"Inspect tug boat electrically operated ramp for cable fraying (replace if frayed), operate ramp through" full travel to assure correct operation. Lubricate fittings and Inspect hold-down bolts for looseness and security.

Canal

Step	Description
1	"Inspect dolphins for rot, damage and stability"
2	Sound canal and river system chanel to identify shoaling (from SSC to MiChoud)
3	"Inspect for bank erosion, animal habitats and vegetation overgrowth for other potential " causes of deterioration of the canal bank
4	"Inspect spillway for integrity, erosion, vegetation overgrowth, and animal habitats "
5	"Keep water surface free from floating vegetation, trash and water hyacinths"
6	Keep drains into canal free from vegetation and sediment
7	Remove small trees and other vegetation from A-1 Test Stand flume
8	Maintain secondary roads around canal (graded and free from pot holes)

Roller Mooring Devices (all docks)

Step	Description
1	Clean and Paint corroded areas--
2	Removed old hardened grease from roller tracks and grease wheel bearings and other lubrication points
3	Inspect counterweight cable and attachments for fraying and replace if necessary
4	Inspect vertical shaft by ultrasound to check for any cracking (Repair any defective shafts under corrective maintenance)
5	"Inspect counterweights, counterweight tubes, fasteners, pulleys"
6	Inspect yokes and pintle ring for cracks and corrosion
7	Inspect mounting bolts for corrosion and wasting.
8	
9	Operate assembly for free operation and test for binding
10	Verify that device can be moved over its full range with less than 40 pounds of force applied to the pintle ring (verify upward and downward force). Adjust counterweight if excessive force is required.

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MAINTENANCE TASK SHEET #MO-2

Marine Operations System

CANAL PUMPING STATION (B-2311) (Ref. MI #MM-1600)

Task #1
Frequency: Quarterly

Step	Description
1	Operate all valves to assure freedom of motion
2	"Lubricate and or adjust packing glands on pumps, motors and valves"
3	"Inspect condition of pump shafts, couplings, lubricators and piping flange gaskets"
4	Inspect inlet and outlet screens and remove accumulated debris
5	"Inspect ventilation screens, ducts and motors an clean if required"
6	"Inspect for visible corrosion on piping, hand rails, grating, and spot paint if required"
7	"Remove vegetation overgrowth from sidewalks, piping control station, and building perimeter"
8	Adjust pump packing glands for correct leakage rate. If seals are
9	Inspect all electrical connections and devices with infared scanner with full load on pumps
10	"Inspect electrical cabinets and devices for corrosion, insect intrusion and for other" visible signs of structural damage.
11	Inspect pump motors for vibration and for unusual noises during operation
12	Assure hold down bolts of motors and pumps and other fasteners are tight and structurally sound
13	Inspect for general cleanliness of area and clean if required
14	Inspect lighting and report items for repair as per item number 5.3.6.1

Task #2
Frequency: Annual

Step	Description
1	Inspect all motor and pump assemblies for excessive load
2	Inspect all electrical and mechanical safety shutdown devices including switchgear
3	Estimate canal fill rate by comparing fill time to area of canal surface. Use this estimate to determine whether flow rate of pumps approaches design pump curves. Note any deterioration over time and use this metric and vibration data to determine when the pump units require removal for corrective maintenance.

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MAINTENANCE TASK SHEET #MO-3

Marine Operations System

Lock

Task #1
Frequency: Quarterly

Step	Description
1	Operate upper and lower gates and lubricate bearings while gates are in motion. Verify that all gates operate without binding in bushings.
2	"Inspect safety railings, ladders and other carbon steel members for corrosion, integrity," and wasting.
3	Inspect hydraulic rams and other assemblies for excessive leakage and clean pits of debris and of oil and grease accumulation
4	Inspect condition of rip-rap and report any soil erosion
5	Remove any floating vegetation and trash from lock area water surface
6	Inspect and maintain roller mooring devices in accordance with Task Sheet 1
7	"Inspect structure for corrosion, leakage, rotting or damaged timbers, wasted fasteners," or other visible deterioration. Report condition.
8	Operate tainer valves and report if valves are leaking excessively
9	"Inspect lower gallery levels, sump pumps, electrical lines and lighting, " "structural members, valves and piping for deterioration and proper operation."
10	Inspect lighting and report items for repair as per item number 5.3.6.1

Task # 2
Frequency: Annual

Step	Description
1	Perform annual monolith inspection and report findings
2	Inspect gate seals for leakage
3	"Inspect lock gate bearings (non intrusive inspection), and bushings"
4	Inspect structure for leaks or abnormal deterioration
5	Operate lock controls and perform minor adjustments as required. Report any abnormal operation
6	
7	Operate tainer valves and inspect for abnormal operation and leakage

8	Clean and inspect hydraulic rams and replace cylinder seals if required
9	Inspect cathodic protection system panel and test for proper operation per item number 5.2.2.2.8.4.7
10	Remove vegetation overgrowth on sidewalks and other areas
11	Remove overgrowth from drainage ditches
12	Inspect marine safety devices and replace if defective

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MAINTENANCE TASK SHEET #MO-4

Marine Operations System

Lock Control Building -- B-2310

Task #1
Frequency: Weekly

Step	Description
1	"Inspect hydraulic pumps, motors and associated piping and correct any minor oil leaks. Clean up spills."
2	Inspect lighting and report for repair as per item number 5.3.6.1

Task #2
Frequency: Quarterly

Step	Description
1	Inspect oil for moisture and replace filters if necessary
2	Lubricate motor bearings or check and top up oil levels
3	Clean corrosion from operating mechanisms
4	Inspect electrical switchgear in accordance with item number 5.2.2.2.8.4.1
5	Inspect cleanliness of building and clean if required.
6	Inspect for improperly stowed items and restow if required.
7	Inspect building interior and exterior for deterioration and corrosion and perform spot painting if required.
8	"Inspect doors, latches, hinges, windows and other openings for proper operation and repair if required."
9	Perform operational check of all equipment to assure that it is operating in accordance with design.

Task #3
Frequency: Annually

Step	Description
1	Perform annual facility inspection and report discrepancies found on DR 5-FA03.

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #MO-5

Marine Operations System

Lox (Oxygen) Docks (qty 15 total)

Note: PM and Operation of the lox dock ramps is not part of this contract.

Task #1
Frequency: Weekly

There are no requirements for weekly PM of the Lox Docks

Task #2
Frequency: Quarterly

Step	Description
1	"Inspect potable water system lines, valves and hoses for leaks and repair if required"
2	Inspect eye wash stations to assure that they operate correctly
3	Inspect structure for integrity and loose fasteners. Repair as required
4	Inspect lighting and report items for repair as per item number 5.3.6.1
5	Inspect structure for corrosion and spot paint if required
6	"Check safety chains, railings, steps and repair as required to assure personnel safety"
7	Clean trash from dock pit area.
8	"Inspect electrical wiring, conduit and connections for corrosion or damage and repair as required."

Task #3
Frequency: Annually

Step	Description
1	Perform annual facility inspection and report discrepancies found on DR 5-FA03.

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #MO-6

Marine Operations System

Hydrogen Docks

Note: Operation and PM of the dock ramps are not included in this contract.

Frequency: Weekly

There are no requirements for weekly PM of the hydrogen Docks

Task #1
Frequency: Quarterly

Step	Description
1	"Inspect potable water system lines, valves and hoses for leaks and repair if required"
2	Inspect eye wash stations to assure that they operate correctly
3	Inspect structure for integrity and loose fasteners. Repair as required
4	Inspect lighting and report findings for repair as per item number 5.3.6.1
5	Inspect structure for corrosion and spot paint if required
6	"Check safety chains, railings, steps and repair as required to assure personnel safety"
7	Clean trash from dock pit area.
8	"Inspect electrical wiring, conduit and connections for corrosion or damage and repair as required."

Task #2
Frequency: Annually

Step	Description
1	Perform annual facility inspection and report discrepancies found on DR 5-FA03.

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #MO-7

Marine Operations System

"OTHER DOCKS AND PIERS (CONSTRUCTION DOCK, D-ROAD DOCK, RP-1 DOCK, PIER AT MARINE OPS BUILDING)"

Frequency: Weekly

There are no requirements for weekly PM of these docks and piers

Task #1
Frequency: Quarterly

Step	Description
1	"Inspect fenders, timbers, pilings visually (without underwater inspection)"
2	Inspect mooring devices for integrity.
3	Inspect structure for integrity and loose fasteners.
4	Inspect lighting and report findings for repair as per item number 5.3.6.1
5	Inspect structure for corrosion and spot paint if required
6	"Check safety chains, railings, steps and repair as required to assure personnel safety"
7	Clean trash from dock pit area.
8	"Inspect electrical wiring, conduit and connections for corrosion or damage and repair as required."

Task #2
Frequency: Annually

Step	Description
1	Perform annual facility inspection and report discrepancies found on DR 5-FA03.

JOHN C. STENNIS SPACE CENTER

MAINTENANCE TASK SHEET #MO-8

Marine Operations System

Bascule Bridge

Task #1

Frequency: Quarterly

Step	Description
1	Dust and wipe off top of control desd and vacuum inside
2	Check all indicating lamps for proper operation
3	Run diagnostic check on programmable logic controller
4	Verify automatic and manual operation
5	Check emergency stop when lowering bridge
6	Check amp readings while operating bridge. Record on PMIS
7	Check water level over sump pump motors. Verify operation of sump pumps
8	Check and clean if necessary sump and pump inlet for debris
9	Check sump pumps for excessive noise and/or vibration or evidence of overheating
10	Verify Span Position Indicator linkage is free and properly adjusted
11	Lubricate each position indicator wear point on the position indicator with light grease
12	"Check for evidence of moisture in the Span Position Transmitter housing(s), " inspect electrical connections and condition of paint
13	"Check searchlight for proper operation (360 degrees horizontal, 45 degrees vertical) "
14	Lubricate searchlight operating handle and brake release grip as required with SAE 30 oil
15	Check for evidence of moisture in Searchlight lamp (clean and replace gasket if required)
16	Check condition of all light seals
17	"Check red warning lights. Eng light burns steady, the other two flash alternately"
18	Check operation of roadway traffic control lights
19	Check operation of warning bells.
20	"Check lights in machinery rooms (North and South spand), sump pump locations and North and South walls"
21	Perform a complete functional test of bridge operation.

Task #2
Frequency: Semiannual

Step	Description
1	Verify span motor heaters are not overheating or defective
2	Clean vents and internals of Span Drive Motors
3	Tighten all nuts and bolts securely. Note loose grout or fastener deterioration.
4	Check Span Moror Brakes space heater for proper operation
5	Clean off motor exteriors
6	Check all Motor Brake nuts and bolts for tightness.
7	Check Motor Brake hand release operation
8	Clean dirt and deposits from the Motor Brake mechanism
9	Maintain Span Motor Brake oil level.
10	Check Machinery Brake space heater for proper operation
11	Check all Machinery Brake bolts and nuts for security.
12	Re-install Span Motor Brake Cover
13	Check Machinery Brake hand release operation
14	Clean out dirt and deposits from the Machinery Brake mechanism
15	Check and maintain oil level at Machinery Brake (GE # D6B11A2)
16	Check electric to Control Limit Switch flex line for damage
17	Check operation of search light for proper operation. Search light must "operate 360 degrees horizontally and 45 degrees vertically, have evidence of " "lubrication, have tight seals on light."
18	"Check red navigation lights, center light must burn steady and other two "lights must flash alternately.
19	Check operation of roadway lights. They must flash and not have burned out "bulbs, have moisture in them or have defects of any type to the safe operation " the gates and warning lights.
20	Check operation of warning bells. No defects are allowed in the sound level or operation.
21	Inspect lights in machinery rooms on North and South Spans and report for repair as per item no. 5.3.6.1
22	Check light at sump pump locations and repair as necessary
23	Check lights on North and South walls and repair as necessary

Task #3
Frequency: Annually

Step	Description
1	Run diagnostic program on Programmable Logic controllers.
2	Remove dirt from cabinet internals and exterior areas